

What is claimed is:

Claims

- 5 1. A system for facilitating delivery of manufactured items from a manufacturing facility to customers via a delivery network, comprising:
- (1) one or more databases, including:
- (a) in transit information describing a location and status of items in the delivery network being delivered from the manufacturing facility to a destination;
- 10 (b) network facility information including identification and capacity of a plurality of network facility points, including origin points, mixing center points, termination points, customer facility points;
- (c) carrier information describing capacity, location and status of network transport devices and transport operators;
- 15 (d) route (lane?) information describing transportation routes within the delivery network, capacity of the routes, and cost of delivery of items along the routes;
- (e) a delivery plan including routes for items and planned times for shipment and delivery of items to points along routes;
- (f) measured transit time information including actual times taken for movement
- 20 of items between points in the network;
- (2) a plurality of access units, the access units being configured to access the one or more databases from a plurality of the network facility points along a route; and being configured to download from one or more of the databases information useful in carrying out a delivery plan implemented via the delivery network.
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2. The system of Claim 1 wherein the access units are configured to upload to one or more of the databases information for updating the in transit information.
3. The system of Claim 1 wherein the access units are configured to upload to one or
- 30 more of the databases information for updating the network facility information.



4. The system of Claim 1 wherein the access units are configured to upload to one or more of the databases information for updating the carrier information.
5. The system of Claim 1 wherein the access units are configured to upload to one or more of the databases information for updating the in transit information, the network facility information, and the carrier information.
6. The system of Claim 1 further comprising a simulation tool operative to predict performance of alternative delivery plans based on the information stored in the one or more databases.

7. A method of delivering manufactured items from a manufacturing facility to customers via a delivery network, comprising:

storing in one or more databases:

(b) in transit information describing a location and status of items in the delivery network being delivered from the manufacturing facility to a destination;

(c) network facility information including identification and capacity of a plurality of network facility points, including origin points, mixing center points, termination points, customer facility points;

(d) carrier information describing capacity, location and status of network transport devices and transport operators;

(e) routing information describing transportation routes within the delivery network, capacity of the routes, and cost of delivery of items along the routes;

(f) a delivery plan including planned routes for items and planned times for shipment and delivery of items to points along routes; and

(g) measured transit time information including actual times taken for movement of items between points in the network;

accessing the one or more databases from a plurality of the network facility points; and

downloading at the one or more network facility points from one or more of the databases information useful in carrying out a delivery plan implemented via the delivery network.

8. The method of Claim 7 further comprising uploading from one or more of the network facility points to one or more of the databases information for updating the in transit information.

9. The method of Claim 7 further comprising uploading from one or more of the network facility points to one or more of the databases information for updating the network facility information.

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10. The method of Claim 7 further comprising uploading from one or more of the network facility points to one or more of the databases information for updating the carrier information.
- 5 11. The method of Claim 7 further comprising uploading from one or more of the network facility points to one or more of the databases information for updating the in transit information, the network facility information, and the carrier information.
12. The method of Claim 7 further comprising simulating performance of alternate
10 delivery plans based on the information stored in the one or more databases.
13. The method of Claim 7 further comprising monitoring compliance with the delivery plan throughout the delivery network at each network facility point, and reacting with appropriate corrective action at the network facility points to disruptions in the
15 delivery plan.
14. The method of Claim 7 wherein the sequence of loading provides for moving items directly from production onto a network transport device bound for a termination point associated with a customer to receive each loaded item.
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15. The method of Claim 7, wherein the sequence of loading provides a sufficient quantity of items bound for the termination point to fill the network transport device.
16. The method of Claim 7 further comprising grouping manufactured items by
25 destination at an origin point, and subsequent to said grouping, loading the items on transport devices.

17. A method of scheduling, manufacturing, and shipping items via a delivery network, comprising:

assembling a set of parts needed to make a predetermined number of items in a
5 predetermined order;

providing a delivery network comprising a plurality of network facility points, including one or more origin points and mixing center points, and a plurality of termination points;

inserting the items as they are made into the delivery network;
10 monitoring activity at the network facility points;

projecting relative congestion along a plurality of routes through the delivery network based on the monitored activity in the network and the destinations of the items to be made; and

responsive to the projected relative congestion in the delivery network, altering
15 one or both of the assembled set of parts and the predetermined order of making the items, so as to cause the items to enter the delivery network in an order calculated to improve efficiency of delivery.

18. The method of Claim 17, wherein altering one or both of the assembled set of parts and the predetermined order of making the items includes ordering production from
20 the assembled set of parts of items going to the same termination point in sequential order.

19. A method of scheduling, manufacturing, and shipping items via a delivery
25 network, comprising:

providing a delivery network comprising a plurality of network facility points, including one or more origin points and mixing center points, and a plurality of termination points;

assembling a set of parts needed to make a predetermined number of items;
30 ordering production from the assembled set of parts so as to manufacture items going to the same termination point in sequential order; and

inserting the items as they are made into the delivery network.

20. A method of transporting vehicles from a plurality of manufacturing plants to a plurality of destination locations via a delivery network, comprising:

5 moving manufactured vehicles from origin plants at a plurality of locations by non-rail transport to a loading facility;

co-mingling vehicles from the origin plants and arranging them in rail loading bays according to destination location;

loading rail cars from the loading bays; and

10 transporting the rail cars in trains to the destination locations via the delivery network without unloading the rail cars.

21. A method of transporting vehicles from a manufacturing plant to a plurality of destination locations via a delivery network, comprising:

15 transporting by rail at least some of a plurality of vehicles released from a manufacturing plant origin point to a mixing center;

consolidating vehicles bound for a common destination location at the mixing center;

transporting the consolidated vehicles to the common destination location;

20 using a simulation tool:

modeling a delivery network including the manufacturing plant origin point, the mixing center, the destination location, and transport devices; and

predicting occurrence of delays at the mixing center; and

25 in response to prediction of a delay at the mixing center, planning and executing a routing plan that transports at least some of the vehicles directly from a first point in the delivery network upstream of the mixing center to a second point in the delivery network downstream of the mixing center so as to bypass the mixing center and reduce the predicted delay.

30 22. The method of Claim 21, wherein the routing plan transports vehicles from the manufacturing plant origin point directly to the destination location.

23. The method of Claim 21, wherein the routing plan transports vehicles from the manufacturing plant origin point directly to the destination location by car hauler.

5 24. The method of Claim 21, wherein the routing plan transports vehicles by car hauler.

25. A method of transporting vehicles from a manufacturing plant to a plurality of destination ramps via a delivery network, comprising:

10 transporting by rail at least some of a plurality of vehicles released from a manufacturing plant origin point to a mixing center;
consolidating vehicles bound for a common destination ramp at the mixing center;
transporting the consolidated vehicles to the common destination ramp;
transporting the consolidated vehicles by car hauler in groups to a plurality of
15 dealerships;
using a simulation tool:
modeling a delivery network including the manufacturing plant origin point, the mixing center, the destination ramp, the plurality of dealerships, and transport devices; and
20 predicting occurrence of delays at the destination ramp; and
in response to prediction of a delay at the destination ramp, planning and executing a routing plan that transports at least some of the vehicles directly from a point in the delivery network upstream of the destination ramp to one or more of the dealerships so as to bypass the destination ramp and reduce the predicted delay.

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26. The method of Claim 25, wherein the routing plan transports vehicles from the manufacturing plant origin point directly to one or more of the dealerships.

27. The method of Claim 25, wherein the routing plan transports vehicles from the
30 manufacturing plant origin point directly to one or more of the dealerships by car hauler.

28. The method of Claim 25, wherein the routing plan transports vehicles from the mixing center directly to one or more of the dealerships.

29. The method of Claim 25, wherein the routing plan transports vehicles from the
5 mixing center directly to one or more of the dealerships by car hauler.

30. A method of transporting vehicles from a manufacturing plant to a plurality of destination ramps via a delivery network, comprising:

transporting by railcar at least some of a plurality of vehicles released from a
10 manufacturing plant origin point to a mixing center, utilizing a first group of railcars each carrying unmixed vehicles bound for a respective common destination ramp, and a second group of railcars carrying mixed vehicles bound for more than one destination ramp;

unloading the second group of railcars at the mixing center;
15 consolidating the unloaded vehicles onto a third group of railcars each carrying unmixed vehicles bound for a respective common destination ramp;

transporting the first and third groups of railcars from the mixing center to the respective common destination ramps;

using a simulation tool:
20 modeling a delivery network including the manufacturing plant origin point, the mixing center, the destination ramp, and transport devices; and

predicting occurrence of delays at the mixing center; and
in response to prediction of a delay at the destination ramp, planning and
executing a routing plan that diverts at least some of the mixed vehicles at the
25 manufacturing plant origin point to car haulers for transport directly to a point in the delivery network downstream of the mixing center.

31. The method of Claim 30, wherein the downstream point in the delivery network comprises a respective destination ramp.

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32. The method of Claim 30, wherein the delivery network further comprises a plurality of dealerships, and, in response said prediction of a delay at the destination ramp, diverting at least some of the mixed vehicles at the manufacturing plant origin point to unmixed car haulers for transport directly to respective dealerships.

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33. A method of transporting vehicles from a plurality of manufacturing plants to a plurality of destination locations via a delivery network, said method comprising the steps of:

10 A) establishing a relationship with a plurality of independent entities, said plurality of different entities providing a continuous delivery network from said manufacturing plants to said destination locations;

15 B) providing at least partial management of each of said entities by the use of on-site delivery network managers having a primary allegiance to a delivery network management company;

20 C) providing a delivery information network for use by said delivery network managers;

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D) providing said delivery network managers with access to information via said delivery information network;

25 E) in response to said information provided in step "D", directing activities of employees of said plurality of different entities to facilitate delivery of said vehicles from said manufacturing plants, along said continuous delivery network, and to said destination locations.



34. The method of transporting vehicles as claimed in Claim 33, further comprising:

F) providing said delivery network managers with the capability to transfer information to said delivery information network.

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35. The method of transporting vehicles as claimed in Claim 33, further comprising the step of modeling said delivery network and providing delivery plans to said delivery information network.

10 36. The method of transporting vehicles as claimed in Claim 33, wherein step A includes the establishment of a relationship with a vehicle manufacturer, and wherein said step of providing management comprises managing the management of said vehicle manufacturer.

15 37. The method of transporting vehicles as claimed in Claim 33, wherein step A includes the establishment of a relationship with a carrier, and wherein said step of providing management comprises managing the management of said carrier.

38. The method of transporting vehicles as claimed in Claim 33, wherein step A
20 includes the establishment of a relationship with a load contractor, and wherein said step of providing management comprises managing the management of said load contractor.

39. The method of transporting vehicles as claimed in Claim 33, wherein step A
includes the establishment of a relationship with a vehicle dealer, and wherein said step
25 of providing management comprises managing the management of said vehicle dealer.